



Clark County, Washington **Endangered Species Act Information**

How does urban development affect salmon?



Salmon and trout are very sensitive to any change in the stream environment. Urban development can alter their habitat by polluting water, degrading instream and riparian habitat, and altering the natural flow of rivers and streams.

Erosion

The erosion of sediment into rivers and streams can be lethal to salmon and trout, which need gravel and rocks to spawn and rear their young. Erosion caused by construction and other activities introduces fine sediments that clog the spaces between rocks and gravel in streams, bury the eggs salmon and trout lay in these spaces, and prevent flowing water and oxygen from reaching the eggs and newly hatched fish.

Sedimentation can also fill in pools, which are an important part of fish habitat. Salmon and trout use pools for rearing and spawning, as

resting areas during migration, and as a refuge to avoid temperature and flow extremes. Sediments in water can damage gills and decrease visibility, which can hamper the fish's ability to find food. Sediments also can carry and store toxic pollutants and nutrients that can poison habitat.

Clark County adopted stricter erosion control requirements in 1999, including steeper fines for violations, to ensure that our water and fish are protected from muddy water. The county has increased its staff to assist in inspection and enforcement of water quality and erosion control requirements.

Impervious surfaces

Parking lots, roofs, roads, and other hard (impervious) surfaces prevent water from soaking into the ground. As impervious surfaces increase, so do the volume and velocity of stormwater runoff into rivers and streams. Consequently, erosion and sedimentation increase, resulting in greater disturbance to spawning and resting areas.

In undeveloped areas, stormwater can soak into the ground, allowing soil and vegetation to filter out some pollution. In urban areas, the dirt, oil, chemicals, and other pollutants that collect on roads and other hard surfaces wash directly into streams without the benefit of any natural treatment. Impervious surfaces "short circuit" natural watershed cleansing processes.

Research shows that when the percentage of impervious surfaces in a watershed exceeds 10 to 15 percent, streams degrade markedly. The diversity of fish and the aquatic insects they eat begins to decline. Sensitive

species, such as salmon and trout, may be replaced by fish species that are more tolerant of degraded streams.

Stormwater management

Good stormwater management can partially offset the impact of impervious surfaces. Under Clark County's new Clean Water Program, the county has stepped up maintenance of storm drains, ponds, ditches, and other facilities to keep sediment and pollutants out of stormwater. This keeps pollutants from entering our surface water-wetlands, streams, rivers, and lakes. It also keeps them from seeping into our groundwater, which is Clark County's main source of drinking water. Specific activities include:

- *Keeping bioswales and stormwater ponds in good working condition.* A bioswale is a low, flat, grassy channel that traps sediment and other pollutants. As stormwater runoff seeps through the bioswale, the pollutants it carries are filtered through the vegetation and are less likely to enter the water system. The county has increased its mowing schedule, and regularly checks bioswales for removal of sediment, reseeding of bare spots, and debris removal.

- *Inspecting and cleaning catch basins.* Catch basins are the steel grates you see in streets or parking lots. They catch stormwater runoff, which is routed through the larger storm drain system. Catch basins need to be cleaned out regularly to function properly. The county has increased the number of times it inspects and cleans each catch basin.

- *Increasing street sweeping.* Street sweeping is important to water quality

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because it helps keep pollutants out of the storm drain system.

- *Revising stormwater and erosion control ordinances.* Clark County is currently revising our stormwater and erosion control ordinances into a single ordinance. It will have stronger requirements that comply with state standards. A separate water quality ordinance is also being revised to include maintenance of all private stormwater facilities.

- *Enforcing environmental codes.* The county recently hired two new erosion control inspectors and two additional code enforcement officers who deal with clean water concerns. A stormwater facilities inspector has also been hired.

- *Outreach programs.* The county has four outreach programs related to stormwater issues: The Natural Lawn Care Campaign, to reduce the use of toxic yard and garden chemicals; Stormwater Assistance for Businesses, to provide businesses with technical assistance on managing stormwater effectively; River Rangers, to teach elementary students how we use, treat, and protect water; and Watershed Stewards, to train volunteers to provide community education on issues related to clean water and watershed health.

- *Clark County's Stormwater Pollution Control Manual* was created to help businesses comply with the county's Water Quality Ordinance, adopted to protect streams and salmon habitat from stormwater runoff. The ordinance requires businesses and government agencies to use good housekeeping practices to prevent pollutants from mixing with stormwater that runs into streams, lakes, and groundwater. For more information, contact Cary Armstrong at (360) 397-6118 ext. 4392. You can view the manual on the county's web site at www.co.clark.wa.us/pubworks/BMPman.pdf.

Riparian vegetation

The abundance of trees and shrubs that grow alongside stream banks is critical to healthy salmon and trout habitat. Removing this riparian vegetation increases water temperatures, destabilizes stream banks, destroys fish habitat, degrades water quality, and diminishes the food supply.

Clark County may have to change some of its critical areas ordinances and other regulations to comply with the ESA. New development may face additional requirements related to leaving trees in sensitive riparian areas and providing adequate setbacks from streams.

What developers can do

Clark County can grow, and development can occur, without destroying salmon and trout habitat in the process. Development that minimizes impacts on fish habitat will help the recovery process. Some things developers can do to help preserve salmon and trout habitat are:

- Use state-of-the-art erosion control.
- Cover bare soil at the construction sites with gravel or straw.
- Don't disturb soil during the rainy season.
- Plant native plants, using compost as a soil amendment instead of fertilizing.
- Remove weeds manually rather than using herbicides.
- Reduce the amount of impervious surface in new developments by using porous paving blocks or grass blocks where appropriate.
- Direct roof runoff to landscaped areas, detention ponds, or grassy swells.
- Plant native trees at the construction site.

For information about salmon recovery in Clark County, contact the Clark County Endangered Species Program at (360)397-2022 or www.saveoursalmon.com.

For questions about how the ESA may affect your development plans, call (360)397-2375 ext. 4399.



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